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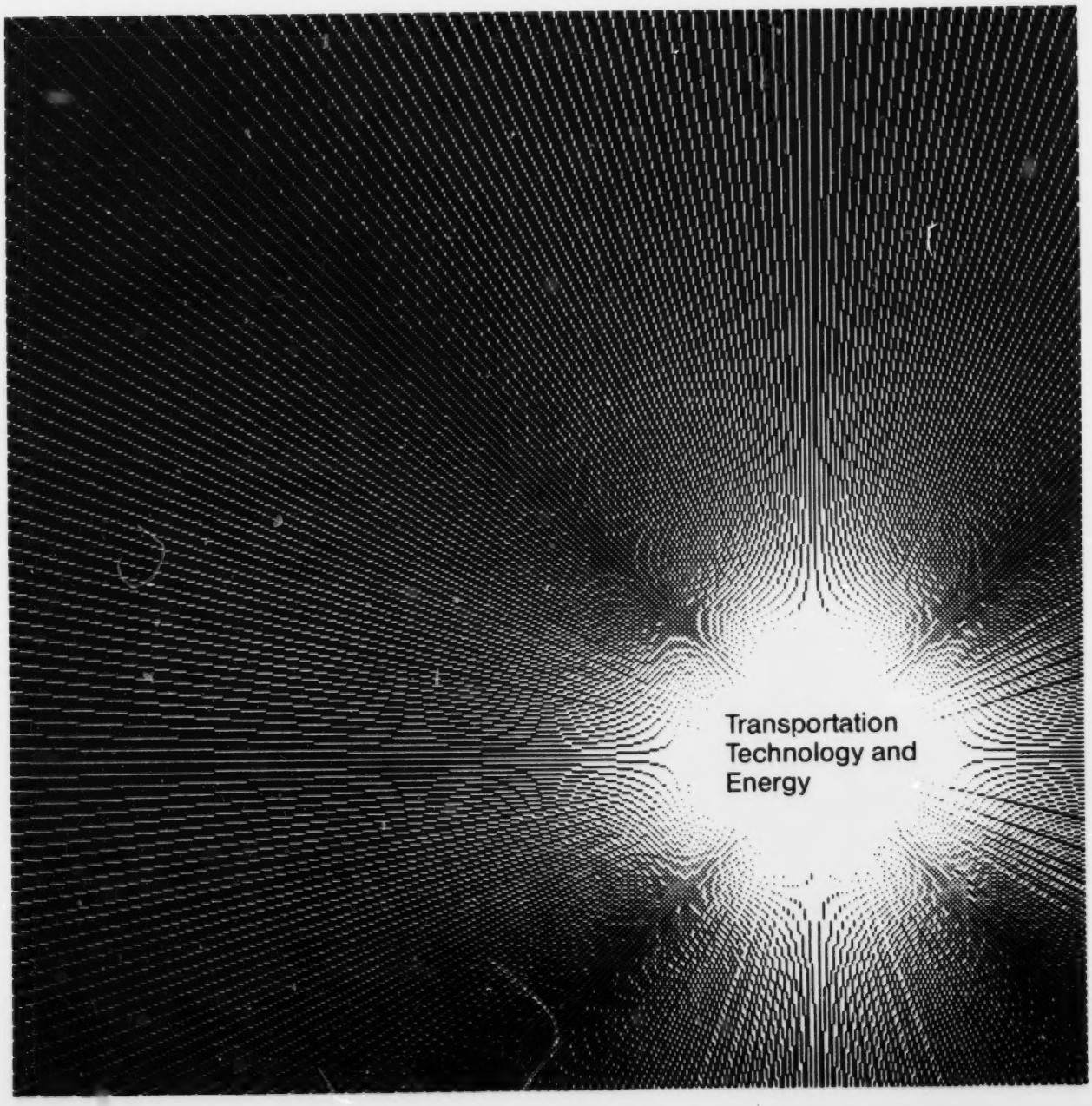
Parallel Noise Barrier Evaluation Survey of Residents and Drivers – Phase II "After" Study Final Report



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Project Manager

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Abstract:
The research project hereby reported was administered by the Human and Social Factors Office of the Transportation Technology and Energy Branch.
This is a report on the results of the survey concerning the impact of parallel noise barriers upon local residents and drivers. The barriers, located along the QEW between Cawthra Road and Dixie Road in Mississauga, have a number of unique design features.
Residents' and drivers' surveys were carried out approximately one year after the construction of the barrier and the results compared with similar surveys carried out prior to construction.

Key Words: Parallel Noise Barrier, residents, drivers, questionnaires, survey

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Appreciation is extended to Mr W. Tatur, manager of the Applewood Village Shopping Centre, and Mr J. Alden, manager of the Dixie Mall, for their cooperation in allowing the Ministry to conduct the survey of area drivers on the premises of their respective shopping centres.

The cooperation of the drivers who took part in this survey and of the residents who took part in the neighbourhood survey is gratefully acknowledged.

EXECUTIVE SUMMARY

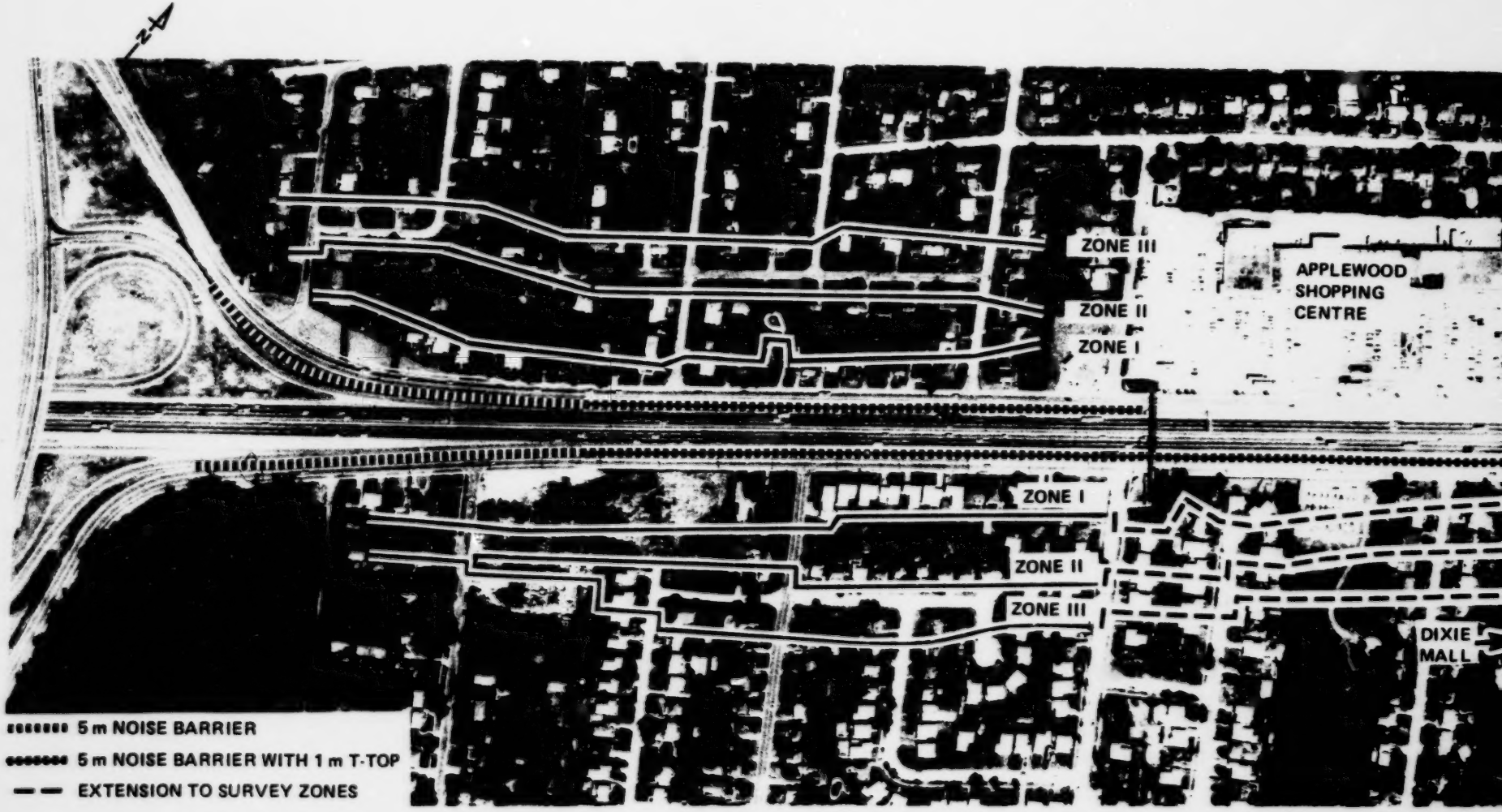
The Ministry of Transportation and Communications commissioned this research as the second phase of a Before- and After-construction study concerning the impact of parallel noise barriers upon local residents and drivers. The barriers, situated along the Queen Elizabeth Way (QEW) between Cawthra Road and Dixie Road in Mississauga, have a number of unique design features. A particular innovation involves the placement of the noise barriers on both sides of a highway between adjacent service roads. Results of this study may help future policy decisions concerning similar barrier applications within the province.

Two surveys were administered in November 1983, approximately one year after barrier construction: one survey was for residents, and the other for drivers. Each survey replicated the surveys conducted in 1981 in order to compare differences in data obtained before and after construction of the barrier. Additional questions were included concerning the barrier's appearance and general impact.

The residential survey examined perceptions of neighbourhood amenities, noise and other disturbances caused by the QEW or the service road, as well as the general reaction to the noise barrier. The study was divided into the same three zones used in the 1981 Before survey. When Before and After data are compared, there are marked reductions in residents' perceptions of the amount of noise from the QEW following construction of the noise barrier. This effect appears to be demonstrated most clearly for those residents living in Zone 1 (i.e., residents living directly in front of the noise barrier). Reductions of dirt and dust, as well as the spray and residue from the QEW are also indicated for Zone 1 households. Overall, residents indicate improvements in their lifestyle due to decreased noise. In terms of general impact, 73% of Zone 1 residents and 78% of all residents indicate overall satisfaction with the barrier. However, several residents disliked the appearance of the barrier (particularly those in Zone 1) and suggested various improvements, such as changing the colour and landscaping.

The driver survey measured judgements of traffic speed, lane position, traffic noise and safety, as well as the appearance of the barrier. Before-After comparisons are made separately for drivers surveyed on the North and South sides of the QEW. Results indicate that for south-side drivers traffic speeds appeared to have slowed down. There were no overall changes indicated in terms of lane position; however, there is some indication that north-side drivers' perceptions of the severity of the safety problems have declined as have their perceptions of service road noise. Finally, the majority of drivers indicated satisfaction with the appearance of the barrier.

In summary, the construction of the noise barrier appears to have significantly and positively influenced the quality of life of area residents, particularly those living closest to the QEW. For drivers, there is only limited evidence that erection of the barrier has significantly altered their perceptions of safety, traffic speed, driving difficulty or noise levels associated with driving on the service roads.



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1/ INTRODUCTION

1.1/ Background

Between late Fall 1982 and early Spring 1983, the Ministry of Transportation and Communications (MTC) constructed experimental noise barriers along the Queen Elizabeth Way (QEW) between Cawthra and Dixie Roads in Mississauga, Ontario. In order to assess the effectiveness and impact of these barriers, as perceived by area residents and drivers, the MTC conducted two studies. The first study occurred in October 1981 prior to the construction of the noise barrier. The present study is a follow-up survey conducted by A.R.A. Consultants in October 1983 after the completion of the noise barrier.

Both studies have to do with perceptions of the quality of neighbourhood life and perceptions of traffic by local residents and drivers. A number of dimensions, including highway noise, attractiveness, and other benefits or problems were measured.

1.1.1/ Description of Barrier

Barriers are situated on both sides of the QEW, between adjacent and parallel service roads to the north and south. In consequence, residents on both sides of the highway may be shielded from QEW traffic, but not from service road traffic. Consideration of directly shielding service road traffic noise was not explored since both service roads are under the responsibility of the Regional Municipality of Peel.

The barriers are grey in colour, rough in texture, and have layers of Durisol sound absorbing materials on both the highway and residential sides. Barriers are 4 m high, and have been erected on top of existing 1 m New Jersey barriers, equalling an overall height of 5 m above pavement. This is the first barrier to be erected on top of an existing new Jersey barrier.

Another unique feature of the barrier is the installation of a 1 m wide sound absorptive cap along the top producing a "T" shape (and appears to

observers below as an "overhang"). The purpose of the cap is to provide some additional shielding to residents from QEW traffic.

1.2/ Rationale for the Study

The first study (referred herein as the **Before-Survey**) served to collect baseline data from local residents and drivers. The surveys of these two groups yielded data on residents' likes and dislikes of their immediate neighbourhood (including perceptions of noise and other highway disturbances) and drivers' perceptions of driving safety, difficulty, noise, etc., while driving along the service roads.

The purpose of the present study (referred herein as the **After-Survey**) was to collect comparable data on neighbourhood quality and traffic conditions, so that attitudes and perceptions could be compared both before and after barrier construction. In addition to before and after comparisons, it was of interest to determine local residents' and drivers' reactions to the appearance of the barrier, and to see if construction of the barrier had resulted in benefits other than noise reduction, or had caused any unexpected problems.

2/ DESCRIPTION OF SURVEY

2.1/ Geographic Study Area

The similarities and differences between the sampling areas for the Before- and After-Surveys are described below.

2.1.1/ Description of Area

Initially, the After-Survey geographic study area was identical to the final survey area used in the Before-Survey analysis. Residents from this survey area were used for Before-After comparisons.

Cawthra Road formed the western limit for the study area, both north and south of the QEW. The northern area extended to the east side of Westfield Drive, near Applewood Shopping Centre. The southern area extended to the west side of Ogden Avenue, towards Dixie Mall.

After consultation with the MTC, it was decided to extend the southern survey area to include the households 300 m east from Ogden Avenue. (These houses were also located in the area protected by the noise barrier on the south side of the QEW.) This larger area was used for the After-Survey pilot test and to increase the sample size for the After-Survey.

2.1.2/ Definition of Zones

The division of the sampling area into three zones for the After-Survey was also identical to the Before-Survey division. Zone 1 was defined as those homes whose property line was situated immediately adjacent to the QEW. Zone 2 included the second row of houses from the highway, while Zone 3 included dwellings between Zone 2 and up to approximately 270 m from the QEW (see Figure 1).

2.1.3/ Differences Between Before-After and After-Only Survey Areas

In this report there are two separate sets of analyses: Before-After study comparison of results between Before- and After-Surveys; and,

After-only survey findings. Each set of analyses is based upon somewhat different survey areas.

Before-After comparisons were based on residents from identical survey areas. The household was considered the sample unit. Wherever possible, an attempt was made to have the original respondent answer the After-study questionnaire. Otherwise, the spouse or another member of the household was used.

For the After-only survey findings, two sources of additional households were attached to the original survey area. These additional sources included:

- houses that had been originally included in the Before-Survey but now had new tenants;
- houses situated behind the barrier that were not included in the Before-Survey data analysis.

For a further discussion of survey areas see 'Decisions on Sampling' later in Section 2.3.5.

2.2/ Questionnaire Development

For the second phase of the study, revisions and additions to each of the residents' and drivers' questionnaires were made. These changes are discussed below.

2.2.1/ Additions to Questionnaires

At least 60% of the Before-Survey questions were identical to those of the After-Survey and were used as a basis of Before-After comparisons.

After discussions with the MTC, a number of items had been added to the residents' and drivers' questionnaires. The most important of these additions dealt specifically with respondents' evaluations of the barrier's appearance and recommended changes (Appendix C: Q11,12; Appendix D: Q13). These questions and others are the source of the After-Survey

comparisons (between zones and sides of the QEW) concerning the noise barrier.

2.2.2/ Pilot Test of Questionnaires

Since the questionnaires had been altered, a one-day pilot-test was conducted to spot problems and to time questionnaire administration. Four interviewers conducted a total of 33 driver and residential interviews. Twenty drivers were interviewed at Dixie Mall, on the south side of the QEW. A list of 20 households was provided by the Ministry staff for the pilot test, from which 13 interviews were successfully completed.

As a result of the After-Survey pilot test, minor modifications were made to the format of the questionnaires.

2.3/ Data Collection Procedures

The following section describes the data collection procedures and decisions on sampling.

2.3.1/ Interviewers

Eight experienced interviewers were chosen to conduct the data collection for the After-Survey. All received training from A.R.A. Consultants specifically for the purpose of this study. Interviewers were asked to follow the instructions provided in the questionnaires as closely as possible, and to probe only when and in the manner indicated (e.g., see Appendix C).

2.3.2/ Time Span

The field survey was conducted from October 11-22, 1983 inclusive. An introductory letter on MTC letterhead was sent out to all households several days prior to the actual period of data collection. It explained that an interviewer from A.R.A. Consultants would be requesting householders to answer questionnaires, (on behalf of the MTC), concerning their neighbourhood. A copy of this letter is shown in Appendix E.

2.3.3/ Procedure

The eight interviewers were divided into four groups: two were assigned to each of the malls -- Applewood Shopping Centre and Dixie Mall; and two pairs of interviewers covered the north and south residential areas. Interviews were conducted in the late afternoons and early evenings during the week, and all day on Saturdays.

Interviewers were instructed to note the time of day on each questionnaire. For the residential survey, a checklist was provided to note down the specific addresses and number of callbacks made. A minimum of four callbacks was attempted for each household.

For the driver surveys, the interviewers attempted to question all adults, aged 16 or over with a driver's licence, who had recently used the service roads behind the barrier. The sample was balanced by sex to match the gender distribution obtained in the Before-Survey.

The data collection manager kept in daily contact with the progress of each group of interviewers throughout the entire period of data collection. This contact served to monitor numbers and quality of completed questionnaires, as well as to ensure that data collection progressed efficiently.

2.3.4/ Quality Control

Quality control checks were conducted on 10% of all residential surveys. Respondents were called back by the data collection manager and asked key questions to verify responses given in the questionnaires. In addition, spot checks were conducted on approximately 10% of the driver interviews.

2.3.5/ Decisions on Sampling

This section describes the rationale for inclusion of various groups in the After-Survey samples.

After-Only Sample After completing four callbacks to the residents of the Before-Survey sample area, the researchers were instructed to

interview from two additional pools of households in order to increase the size of the sample and thus increase the reliability of subsequent findings.

One source comprised households within the original survey area that had not been questioned for the Before-Survey. The other source of additional households was made up of residents south of the QEW who had originally been interviewed for the Before study on the understanding that the proposed noise barrier would be extended east into their neighbourhood. These respondents were dropped from the Before study when a decision had been made not to extend the barrier to shield their houses. In fact, this decision was reversed and the barrier did extend past their houses. It was therefore appropriate to assess the opinions of these "extension" residents concerning the barrier. (The 'extension' area is shown in Figure 1).

Since the "extension" residents lived in an area with only a single barrier (that is, there was a barrier on only the south side of the QEW, not the north side), their responses were compared to those from the rest of The After-only sample to determine whether the two groups were similar and if the "extension" respondents could be included in the sample.

There were a total of 13 of these "extension" respondents: two from Zone 1; four from Zone 2; and seven from Zone 3.* Examination of average differences between all of the "extension" respondents and the rest of the sample indicated that the two groups were very similar in most responses. Statistical tests comparing average differences for a number of selected questions directly related to QEW or service road noise detected no significant differences between the groups. These questions included Q2A (traffic noise), Q3C (QEW noise) and Q3D (service road noise).

Given the similarity in responses, the "extension" respondents were included in the sample for which After-only findings are discussed, giving a total sample size of 109 respondents.

---

* Note that several more households comprised the "extension" area, however, these residents had been interviewed for the After-Survey pilot study.

Before-After Sample Not all of the residents sampled during the After study (1983) could be included in the sample to be compared to the Before study (1981). It would have been inappropriate to include household residents whose responses were not included in the Before study since changes in opinion before and after the erection of the noise barrier were to be evaluated. Therefore, those respondents whose responses had been dropped from the 1981 study (13 cases), as well as those households within the geographical boundaries of the zones that had not been interviewed during the 1981 study (10 cases), were excluded from the sample to be used for Before-After comparisons. A total of 86 households remained.

Since the household had been used as the sample unit, it was decided to examine whether or not the responses of the original respondents differed from the answers of the spouses or other relatives of those who were not available for interview. Responses of these two groups in the After-Survey were compared statistically on the same questions measuring opinions about QEW and service road noise for which comparisons had been made for "extension" residents. There were no differences in responses to these questions and, in addition, responses did not differ by sex, zone, or north-south location. Therefore, responses from original respondents and the spouses or adult relatives were combined to make up the sample of 86 persons for Before-After comparisons.

3/ SAMPLE CHARACTERISTICS

3.1/ Residents

The following section describes the sample of residents who took part in the study.

3.1.1/ Sampling Criterion and Size

As indicated previously, two different samples were used in the study. The first sample, including original household respondents only, was used for the Before-After comparisons. The second sample, including original plus new respondents, was the basis of After-only findings regarding the noise barrier.

The Before-After sample included 86 households divided equally (43 each) among both north and south sides of the QEW. In terms of zones, Zone 1 consisted of 33 households (N=16, S=17); Zone 2 of 31 (N=15, S=16), and Zone 3 of 22 households (N=12, S=10).

The After-only sample encompassed 109 households, an addition of 23 new respondents to the 86 original respondents. This sample is also divided approximately equally between both sides of the QEW (N=53, S=56). In terms of zones, Zone 1 included 38 households (N=19, S=19); Zone 2 had 39 (N=19, S=20); and Zone 3 consisted of 32 households (N=15, S=17).

3.1.2/ Sampling Rate

The sampling rate is defined as the rate or percentage actually sampled from the total number available or possible to sample.

For the Before-After sample, out of a possible total of 104 households (N=55, S=49), 86 were actually sampled. The sampling rate, therefore, was 82.7%. Regarding the After-only sample, out of a possible total of 130 households (N=67, S=63), 109 were actually sampled. The sampling rate for this was 83.9%.

3.1.3/ Sex Differences

For the total sample of 109, there were slightly more females (56%) than males (44%). The north side had a higher percentage of males (49.1%) than did the south side (39.3%) with the reverse true for females (N = 50.9%, S = 60.7%). By zone, females predominated somewhat in all three zones (Zone 1: females = 60.5%; Zone 2: females = 53.9%; Zone 3: females = 53.1%). In the 1981 Before-Survey, female representation was as follows: Zone 1 = 54.5%; Zone 2 = 50%; Zone 3 = 55.5%.

3.1.4/ Age

The average or mean age for both males and females was virtually the same (females = 50.8 years, males = 50.7 years). The north side, however, had an older population than the south side for males (56.4 years) and younger population for females (45.3 years). Zone 1 had the oldest respondents, with mean age decreasing as distance from the highway increased (Zone 1 = 51.9 years; Zone 2 = 51.5 years, Zone 3 = 48.5 years). In the Before-Survey, distribution of mean age was as follows: Zone 1 = 48.9 years; Zone 2 = 44.5 years; Zone 3 = 45.3 years.

3.1.5/ Mobility

The majority of respondents (96%) owned their own homes. On average, respondents had lived approximately 16 years in their homes. This compares to an average length of residence of 14 years reported in the Before study two years previously. Statistically, there were no zone differences and no Before-After differences in residents mobility for the area surveyed.

3.2/ Drivers

3.2.1/ Sample Size

The total driver sample size was 306. This compares with the total sample of 308 drivers obtained in the Before-Survey.

3.2.2/ Sex And Age

Of the total of 306 drivers interviewed, 159 (52.0%) were male and 147 (48.0%) were female. Of the Dixie Mall drivers interviewed, 104 (55.3%) were male and 84 (44.9%) were female. At the Applewood Shopping Centre, 55 males (46.6%) and 63 females (53.4%) were interviewed. In the Before survey, 308 drivers were interviewed of which 57.1% were male and 42.9% were female.

The average age of drivers from both plazas were fairly similar. Applewood Shopping Centre drivers had a mean age of 41.3 years versus drivers at the versus Dixie Mall with 42.6 years. In the Before survey, Applewood Plaza drivers had a mean age of 44.3 years, while Dixie Mall drivers' mean age was 35.1 years.

3.3/ Statistical Procedures

The data collected for the present study were described and tested by several different statistical procedures. Responses to some questions were described in terms of the numbers and percentages of respondents giving specific answers, and differences among groups were tested by chi-square tests, t-tests and F-tests. For comparisons across inter-related sub-questions, multiple F-tests (MANOVAS) were employed. The minimum level of statistical significance reported is 0.05, meaning that a result of that particular size would occur by chance fewer than five times in a hundred.

Before-After Test Statistics

A limitation to the comparison of Before and After study results was the fact that the raw data was not available from the Before study. Therefore Before-After comparisons were limited to those statistical tests that could be computed using only the summary statistics (means, standard errors, etc.) reported in the Before-Survey. The statistical tests used for Before-After comparisons were chi-squares and t-tests.

4/ FINDINGS

4.1/ Before-After Comparisons

The purpose of this section is to present the differences between the Before- and After-Surveys. Sections 4.1 to 4.1.5 deal with Before-After findings related to residents, while sections 4.2 to 4.2.7 present drivers' Before-After findings. Tables (located in Appendix A) are presented only in instances in which there are statisticaly significant changes from the Before study to the After study. Other pertinent information is included in the text where appropriate.

4.2/ Residents

The sample of 86 respondents (original respondents and spouses) are the basis of these Before-After comparisons. Only those questions which are identical in both the Before- and After-Survey questionnaires have been compared. The data has been analysed and presented according to the three different zones, both in the text and in the accompanying tables.

4.2.1/ Neighbourhood Likes (Q1)/Dislikes (Q2)

As in the Before study, the original respondents were asked to indicate (spontaneously) features they liked and disliked about their immediate neighbourhood. During the intervening two years between the two surveys, the respondents' likes did not change in a statistically significant manner.

There was only one statistically significant change in residents' reports of disliked neighbourhood features: perceptions of traffic noise. Displeasure with traffic noise decreased significantly across all zones, with the most marked difference in Zone 1 (see Table A-1). In the Before study, residents in Zone 1 indicated more displeasure with traffic noise than those in Zone 2, as did Zone 2 residents compared with those in Zone 3. Thus, displeasure with traffic noise was most evident closest to the highway, decreasing as the distance from the highway increased.

The Before-After comparisons (see Table A-1) showed statistically significant differences across all zones. Residents in all zones perceived a decrease in traffic noise since erection of the barrier. The most marked improvement occurred in Zone 1 where, at the time of the Before test almost two-thirds of the residents had said that noise was a problem. Only one-third of the residents mentioned noise as a disliked neighbourhood feature during the After-Survey.

In the Before study, residents indicated a minor problem concerning the amount of traffic on the service roads or local streets. No major change occurred between the Before and After studies for this problem.

4.2.2/ Neighbourhood Negative Features (Q3)

The original respondents were asked to indicate on a scale of 0 (no problem) to 3 (severe problem) the degree of severity of potential problems associated with proximity to the QEW and service road. Table A-2 shows, by zone: the mean ratings of severity from both the Before and After studies; the difference between those means; and statistical significance of differences, where appropriate.

In the Before-Survey, noise from the QEW was identified as a major problem across all zones. A significant decline between Before and After means occurred in all zones, with the greatest Before-After difference in Zone 1 (difference in means = 1.1), followed by Zone 2 (1.0), and Zone 3 (0.9).

Dirt and dust on the yard and porch was identified in the Before-Survey by Zone 1 residents to be a problem equally as severe as noise from the QEW. The Before-After difference between means for Zone 1 (1.1) was statistically significant, indicating that residents experienced an improvement in the cleanliness of their yards and porches.

In the Before-Survey, a problem for Zone 1 residents was their exposure to spray and residue from the highway. The Before-After difference in means (0.8) represented a significant reduction for Zone 1 residents.

There was virtually no Before-After difference in means for service road noise among residents of Zone 1. Noise from the service road was still considered somewhat of a problem, particularly for Zone 1 residents. Perceptions of the severity of service road noise declined with distance from the highway. Significant improvement in service road noise was noted only in the case of Zone 3.

4.2.3/ Specific Limitations Related to the QEW and Service Roads (Q4)

When residents were asked about specific limitations of their neighbourhood, marked improvements (Before-After differences of statistical significance) were noted in 80% of comparisons. In the Before-Survey, noise from the QEW when using one's yard was considered a major problem in all three zones. The problem was considered greatest in the zone closest to the QEW, diminishing somewhat as distance from the highway increased. The Before-After differences show improvement in this situation with the noise from the QEW perceived as less severe in Zone 1, followed by Zones 2 and 3.

Noise from the service road when using one's yard showed a lesser decline (Before-After difference) in all three zones (see Table A-3).

A similar pattern of improvements was seen in comparisons of residents' reports of QEW noise when trying to sleep. The greatest improvements were reported by Zone 1 residents, followed by residents of Zone 2 and Zone 3. Noise from the QEW when talking, and when reading and relaxing, as well as problems with QEW fumes showed similar declines.

Residents also reported improvements in noise problems from the service road, although these improvements were generally smaller than reported for QEW improvements. Although residents from all three zones reported similar rates of improvement for service road noise, Zone 1 residents in both the Before- and After-Surveys were apt to perceive service road noise as more of a problem than other residents.

4.2.4/ Lifestyle Limitations Due to Proximity to the QEW and Service Roads (Q5)

Residents of all zones reported considerably fewer limitations to their lifestyles in the After-Survey, a significant change. While 35% of original respondents had, in the Before-Survey indicated limitations to their lifestyle due to the proximity to the QEW, only 7% did so in the After-Survey (see Table A-4).

Zone 1 residents witnessed the greatest improvement in lifestyle with a decline from 48% to 6% of those actually indicating limitations. Zone 2 residents had a large but somewhat lesser decline, from 33% to 10%, and Zone 3 had the smallest decline, from 15% to 5% in perceiving lifestyle limitations.

4.2.5/ Considerations of Moving (Q15A, 15C)

The percentage of original respondents who had considered moving decreased from 46% to 34% and these residents were concentrated in Zones 1 and 3. Of those who had considered moving, the percentage who had indicated that the QEW was the reason for the move declined slightly, from 65% to 58%. In both cases, however, neither the Before-After differences, nor the differences across those zones were statistically significant.

4.3/ Drivers

The total sample of 306 drivers interviewed in the After-Survey is utilized in the following discussion of comparisons between the Before- and After-Surveys of drivers. As in the residents' survey, only questions identical in both Before-Survey and After-Survey questionnaires have been included for discussion in this section.

The data has been analysed and presented separately for driving on both north and south sides of the QEW in the text, and in the accompanying tables.

4.3.1/ Perceptions of Traffic Speed (Q2, 5)

On both the north and south sides of the QEW, drivers were asked to judge the speed of traffic in the lane closest to the houses (Q2), and closest to the QEW (Q5). There were significant Before-After differences in perceptions of traffic speed, for south-side drivers only.

4.3.2/ Lane Closest to the Houses (Q2)

For the south side, the highest percentage of Before-Survey drivers (38%) felt that traffic speed was slightly above the speed limit. The highest percentage of After-Survey drivers (51%), however, felt that traffic speed was generally at the speed limit. This Before-After difference was statistically significant for south-side drivers (see Table A-5).

4.3.3/ Lane Closest to the Highway (Q5)

Table A-6 also shows similar results for the south side. The highest percentage of Before-Survey drivers (42%) felt that traffic speed was slightly above the speed limit. However, the highest percentage of After-Survey drivers (57%) felt that traffic speed was generally at the speed limit.

4.3.4/ Perceptions of Lane Position (Q3, 4, 6, 7)

No statistically significant differences were noted regarding drivers' perceptions of lane position in the After-Survey compared with the Before-Survey. However, a small proportion of drivers (8%) noted that the presence of the barrier made them feel very claustrophobic while driving.

4.3.5/ Service Roads Safety (Q8A, 8B)

There was very little change in the percentage of drivers who felt that safety was a problem while driving on either service road. Close to 40% of drivers considered safety a problem.

A significant change in perceptions of safety was observed for the north-side drivers (see Table A-7). Whereas in the Before-Survey 41% of the drivers who had indicated that safety was a problem said that the problem was severe, in the After-Survey only 11% felt it was a severe problem. Of those drivers reporting safety to be a problem, most (41%) said that service road lanes were a problem, in that traffic was heavy (25%). Six percent of those reporting problems (a total of seven people) said that the barrier was distracting.

4.3.6/ Service Roads Noise (Q9A, 9B)

The same pattern of results reported for safety is evident for noise. In this instance, fewer than 10% of the After-Survey drivers considered noise to be a problem. There was a significant change among the north-side drivers, who were more apt to see noise as a less severe problem in the After-Survey (see Table A-8).

4.3.7/ Driving Difficulty Relative to Other Roads (Q10)

A majority of drivers on both the north and south sides perceived driving difficulty on the service roads about the same when compared to driving in general. However, for a minority of north-side drivers, a significant Before-After difference was noted. There was a shift of approximately 9% of drivers who, in the Before-Survey had felt that driving was easier and, in the After-Survey had felt the driving was more difficult (see Table A-9).

The result is somewhat inconsistent with the two previous findings. Whereas a larger percentage of the north side After-Survey drivers felt that driving was more difficult, they also considered safety to be less of a problem than before.

4.4/ After-Only Survey Findings and Comparisons

The following findings are drawn solely from the After-Survey results. Sections 4.5 to 4.5.7 report After-Survey findings concerning residents, while sections 4.6 to 4.6.4 deal with drivers' findings. Tables of results are located in Appendix B.

4.5/ Residents

This sample is larger than for Before-After comparisons because it includes the original respondents plus newly added households (see Section 3/ Sample Characteristics).

4.5.1/ Neighbourhood Likes (Q1)/Dislikes (Q2)

In terms of likes (Q1), all three zones residents most often mentioned convenience to amenities. Zone 1 residents liked their suburban location significantly less than those of Zones 2 and 3 (see Table B-1).

Concerning dislikes (Q2), Zone 1 residents were mostly bothered by noise from the QEW (34.2%). Zone 2 residents also disliked noise from the QEW (30.8%), while the highest percentage of Zone 3 residents (34.4%) did not dislike anything and were significantly more satisfied with their neighbourhood than residents in Zone 1 and Zone 2.

4.5.2/ Neighbourhood Negative Features (Q3)

Zone 1 residents saw stranded motorists and hitchhikers as a greater problem than did residents of the other zones, and Zone 1 and Zone 2 residents rated service road noise significantly more of a problem than did Zone 3 residents (see Table B-2).

4.5.3/ Specific Limitations Related to the QEW and Service Roads (Q4)

Overall, only a total of 16 people (14.7%) reported any limitations to their lifestyle due to proximity to the QEW and service road (see Table B-4).

4.5.4/ Noise Barrier Problems (Q7)/Benefits (Q8) and Lifestyle Changes (Q9)

Overall, two-thirds (65.7%) of the residents felt that the barrier had not caused any problems (Q7). Of those respondents who did answer in the affirmative (33.3%), most were concentrated in Zones 1 (39.4%) and 3

(38.7%) (See Table B-5). The main reported benefit of the noise barrier was less noise (49.2%) (see Table B-6).

Approximately three-quarters of the residents felt there had been no change in their home lifestyle since construction of the barrier. Of those who did indicate a change, it was generally for the better (see Table B-7).

4.5.5/ Before Versus After Noise Barrier Comparisons (Q10)

Residents were asked to rate differences in noise, fumes and other problems since barrier construction. Zone 1 residents tended to rate problems as significantly better now than other zone residents. Zone 1 residents were more apt than other residents to report improvements in amounts of dust and dirt, service road traffic fumes and salt and residue from the QEW (see Table B-8). The area of most improvement was in QEW noise.

4.5.6/ Recommended Barrier Changes (Q11,12-i) And Overall Satisfaction (Q12-ii)

Approximately half of all residents recommended changing the colour of the barrier to either green or to a lighter shade (see Table B-9). A greater percentage of Zone 1 residents (68.4%) as compared with residents from Zone 2 (48.7%) and Zone 3 (31.3%) wanted the change in colour. The most common suggestion for changing the appearance of the barrier was the addition of trees or shrubs immediately surrounding it. In regard to pattern, approximately half suggested no pattern. The highest percentage of Zone 1 residents (47.2%), however, did desire a pattern. Overall, two-thirds of all residents would use the same materials.

Almost all residents (94%) had noticed the barrier overhang, and 79.8% of all residents would leave it as is. Zone 1 residents are only slightly less accepting of the "overhang" (68.8%) (see Table B-10).

Most residents (78%) were satisfied with the noise barrier, with slightly fewer satisfied in Zone 1 (73%), as compared to Zone 2 (75.7%) and Zone 3 (88.5%) (see Table B-11).

4.5.7/ Other Findings (Q13, 14, 15, 20)

Most residents travel more than once a week on the QEW (Q13) (Table B-12). In response to a question on the attractiveness of other barriers in Toronto, most residents feel that the highway and surrounding area were made less attractive by these barriers (Q14) (Table B-13).

Overall, 37% of residents had considered moving from their neighbourhood (Q15). Of those who had considered moving, the majority were from Zone 1 (44.7%). A large percentage of Zone 1 residents (58.8%) did mention proximity to the QEW as a factor in their thoughts about moving (see Table B-14).

Finally, there was no consistency in the effect that residents perceived the barrier would have on property values (Q20) (see Table B-15).

4.6/ Drivers

This sample is the same as for the Before-After survey comparisons but the results discussed in this section of the report are After-Survey responses only.

4.6.1/ Frequency (Q1)/Level of Comfort (Q12)

Overall, the highest percentage of drivers (33.3%) indicated a frequency of driving of several times per week on the service roads (Q1) (Table B-16). Approximately half of all drivers perceive no change in their level of comfort while driving beside the barrier compared with prior to its construction. However, significantly more drivers on the south side felt less comfort than drivers on the north side (Q12) (Table B-17).

4.6.2/ Service Road Safety (Q8)/Noise (Q9) and Driving Difficulty Relative to Other Roads (Q10)

Most drivers did not consider service road safety or noise to be a problem. Of those drivers who did indicate a safety problem, a higher number on the south side than the north side thought it was severe. The converse is true regarding driving difficulty. A significant number of

south-side drivers felt driving was easier compared to the north-side drivers (see Table B-18).

4.6.3/ Recommended Barrier Changes (Q13)

Most drivers had noticed the "overhang" and wished it left as is (Q13e, 13f) (see Table B-19). In terms of recommendations concerning changes to the barrier, two-thirds of all drivers would not change the colour. Of those who would like a change, most want a lighter shade. Most drivers were not interested in a pattern finish nor did they want to change the materials from which the barrier was constructed (see Table B- 20).

4.6.4/ Comments Concerning Driving or Traffic on the Service Roads (Q14b)

The highest percentage of drivers indicated a generally positive view of service road driving and traffic. These responses were mostly from south side drivers. Other comments by drivers included, for the south side, that the roadways are confusing and, for the north side, that traffic was too busy or fast (see Table B-21).

4.7/ Discussion

The results indicate a clear improvement in residents' perceptions of the amount of noise from the QEW, following construction of the noise barrier. This effect appears most strongly for those residents living closest to the barrier in Zone 1.

Discomfort from QEW noise had been a major problem for all residents at the time of the Before-Survey, especially those in Zone 1. In addition, dirt and dust, and salt spray from the QEW had been problems for Zone 1 households. Marked improvements in these conditions were reported at the time of the After-Survey.

In general, residents report improvements in their lifestyle due to decreased noise, fewer problems in using their yards, sleeping, and reading or relaxing. Traffic fumes are also less of a problem. Although

problems due to QEW noise have declined significantly, problems attributed to service road noise remained much the same.

Overall, residents perceive that the QEW imposes fewer limitations on their lifestyle since the erection of the noise barrier. A number of residents commented that prior to construction of the noise barrier, people could not be heard outdoors without shouting at each other.

Zone 1 residents had both the strongest positive and negative reactions to the noise barrier. They were most likely to state that it has resulted in significant lifestyle improvements, but they were also most likely to dislike the appearance of the barrier.

The erection of the noise barrier between the QEW and the service roads seems to have had the effect of making noise from service road traffic more noticeable. Zone 1 residents are bothered more by service road traffic than are residents of the other zones.

Many residents suggested changes to the appearance of the barrier -- changes in colour; pattern; and material. The most frequent other suggestion was that trees or shrubs be landscaped around the barrier.

Following the erection of the noise barriers, traffic speed was perceived to be slower by drivers on the South (but, not the North) Service Road. This may, in part, be attributed to extra traffic generated by residential construction which has taken place between the QEW and the Lakeshore. In part, too, it may be attributed to drivers' perceptions of the South Service Road as a long "entrance ramp" to the QEW.

North-side drivers' perceptions of the severity of safety problems on the North Service Road declined, as did their perceptions of service road noise. However, drivers tend to report that driving on the North Service Road is more difficult now (compared with other roads) than had been the case before the barriers were erected.

In summary, the construction of the noise barrier appears to have significantly and positively influenced the quality of life of area residents, particularly those living closest to the QEW. In general, there is no

compelling evidence that the erection of the barrier has significantly changed drivers' perceptions of the safety, traffic speed, driving difficulty or noise levels associated with driving on the service roads.

APPENDIX A/ BEFORE-AFTER SURVEY COMPARISONS

Table A-1/ Residents -- Dislikes -- Traffic Noise (Q2a)
Before-After Test Comparisons (Original Respondents Only)

TRAFFIC NOISE	ZONE 1				ZONE 2				ZONE 3			
	Before		After		Before		After		Before		After	
	N	%	N	%	N	%	N	%	N	%	N	%
Yes	28	63.6	11	33.3	20	60.6	10	32.3	13	48.1	4	18.2
No	16	36.4	22	66.7	13	39.4	21	67.7	14	51.9	18	81.8
	44	100.0	33	100.0	33	100.0	31	100.0	27	100.0	22	100.0

$X^2 = 6.92$ $p < 0.01$

$X^2 = 5.16$ $p < 0.05$

$X^2 = 4.80$ $p < 0.05$

Table A-2/ Residents -- Neighbourhood Negative Features (Q3)
Before-After Comparisons (Original Respondents Only)

		ZONE 1 (df = 75)			ZONE 2 (df = 62)			ZONE 3 (df = 47)		
		Before	After	Diff.	Before	After	Diff.	Before	After	Diff.
a/ Break-ins/vandalism	$\bar{x}$	0.7	0.6	0.1	0.7	0.9	-0.2	0.7	0.9	-0.2
	SE	0.1	0.2		0.2	0.2		0.2	0.2	
b/ Stranded motorists/ hitch-hikers	$\bar{x}$	0.7	0.3	0.4	0.4	0.2	0.2	0.2	0	0.2
	SE	0.2	0.1		0.1	0.1		0.1	0	
c/ Noise from QEW	$\bar{x}$	2.2	1.1	1.1**	2.2	1.2	1.0***	1.7	0.8	0.9**
	SE	0.2	0.3		0.2	0.2		0.2	0.2	
d/ Noise from service road	$\bar{x}$	1.7	1.6	0.1	1.5	1.1	0.4	1.2	0.5	0.7*
	SE	0.2	0.2		0.2	0.2		0.2	0.2	
e/ Dirt and dust on yard/porch	$\bar{x}$	2.2	1.1	1.1***	1.6	1.1	0.5	1.2	1.4	-0.2
	SE	0.2	0.2		0.2	0.2		0.2	0.4	
f/ Spray/residue from highway	$\bar{x}$	1.9	1.1	0.8*	1.0	0.6	0.4	0.6	0.4	0.2
	SE	0.2	0.3		0.2	0.3		0.2	0.2	
g/ Sight of QEW traffic	$\bar{x}$	0.6	0.3	0.3	0.5	0	0.5*	0.6	0.3	0.3
	SE	0.2	0.2		0.2	0		0.2	0.3	

* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

Note: All c mparisons tested with t-tests, using appropriate degrees of freedom.

Problem Level Response Categories	(0)	No Problem
	(1)	Mild
	(2)	Moderate
	(3)	Severe

Table A-3/ Residents -- Specific Limitations Related to the QEW and Service Roads (Q4)
Before-After Comparisons (Original Respondents Only)

			ZONE 1 (df = 74)			ZONE 2 (df = 61)			ZONE 3 (df = 47)		
			Before	After	Diff.	Before	After	Diff.	Before	After	Diff.
a(i)	Noise trying to sleep -- QEW	$\bar{x}$	1.7	0.4	1.3***	1.7	0.9	0.8**	1.2	0.6	0.6*
		SE	0.2	0.1		0.2	0.2		0.2	0.2	
a(ii)	Noise trying to sleep service road	$\bar{x}$	1.2	0.6	0.6*	1.1	0.8	0.3	0.9	0.3	0.6**
		SE	0.2	0.2		0.2	0.2		0.2	0.1	
b(i)	Noise when talking -- QEW	$\bar{x}$	1.2	0.3	0.9***	0.8	0.2	0.6**	0.5	0.1	0.4***
		SE	0.2	0.1		0.2	0.1		0.1	0.1	
b(ii)	Noise when talking -- service road	$\bar{x}$	1.0	0.3	0.7**	0.5	0.2	0.3*	0.4	0.1	0.3*
		SE	0.2	0.1		0.1	0.1		0.1	0.1	
c(i)	Noise when using yard -- QEW	$\bar{x}$	2.3	1.0	1.3***	2.2	1.0	1.2***	1.7	0.7	1.0***
		SE	0.2	0.2		0.2	0.2		0.2	0.2	
c(ii)	Noise when using yard -- service road	$\bar{x}$	1.8	1.1	.7*	1.8	0.9	0.9**	1.1	0.4	0.7**
		SE	0.2	0.2		0.2	0.2		0.2	0.1	
d(i)	Noise when reading/ relaxing -- QEW	$\bar{x}$	1.3	0.2	1.1***	0.9	0.1	0.8***	0.5	0.1	0.4
		SE	0.2	0.01		0.2	0.1		0.2	0.1	
d(ii)	Noise when reading/ relaxing -- service road	$\bar{x}$	1.0	0.2	0.8***	0.6	0.1	0.5**	0.5	0.0	0.5*
		SE	0.2	0.1		0.2	0.1		0.2	0.0	
e(i)	Traffic fumes -- QEW	$\bar{x}$	1.6	0.5	1.1***	1.1	0.9	0.2	0.6	0.2	0.4
		SE	0.2	0.2		0.2	0.2		0.2	0.1	
e(ii)	Traffic fumes -- service road	$\bar{x}$	1.3	0.7	0.6*	0.9	0.9	0	0.5	0.1	0.4
		SE	0.2	0.2		0.2	0.2		0.2	0.1	

* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

Note: All comparisons tested with t-tests, with appropriate degrees of freedom.

Problem Level Response Categories	(0)	No Problem
	(1)	Mild
	(2)	Moderate
	(3)	Severe

Table A-4/ Residents -- Lifestyle Limitations due to Proximity to the QEW and Service Roads (Q5) Before-After Comparisons (Original Respondents Only)

LIMITATIONS	ZONE 1				ZONE 2				ZONE 3			
	Before		After		Before		After		Before		After	
	N	%	N	%	N	%	N	%	N	%	N	%
Yes	21	47.7	2	6.1	11	33.3	3	9.7	4	14.8	1	4.8
No	19	43.2	29	87.9	21	63.6	27	87.1	21	77.8	20	95.2
Don't know	4	9.1	2	6.1	1	3.0	1	3.2	2	7.4	0	-
	44	100.0	33	100.0	33	100.0	31	100.0	27	100.0	21	100.0

$X^2 = 17.23$, $p < 0.05$

$X^2 = 5.26$, $p < 0.05$

$X^2 = 3.11$, $p < 0.10$

	TOTAL			
	Before		After	
	N	%	N	%
Yes	36	34.6	6	7.1
No	61	58.7	76	89.4
Don't know	7	6.8	3	3.5
	104	100.0	85	100.0

$X^2 = 23.50$, $p < 0.01$

Table A-5/ Drivers -- Perceptions of Traffic Speed (Q2)
Before-After Comparisons

"LANE CLOSEST TO HOUSES"	SOUTH[A]				NORTH			
	Before		After		Before		After	
	N	%	N	%	N	%	N	%
1/ Well below speed limit	4	2.3	2	1.1	4	3.0	0	-
2/ Slightly below speed limit	25	14.3	23	12.3	9	6.8	11	9.4
3/ At speed limit	53	30.3	96	51.3	52	39.1	57	48.7
4/ Slightly above speed limit	67	38.3	49	26.2	38	28.6	34	29.1
5/ Well above speed limit	22	12.6	13	7.0	26	19.5	11	9.4
Don't know	4	2.3	4	2.1	4	3.0	4	3.4
	175	100.1	187	100.0	133	100.0	117	100.0

A: X^2 (df = 5) = 17.40, $p < 0.01$

Table A-6/ Drivers -- Perceptions of Traffic Speed (Q5)
Before-After Comparisons

"LANE CLOSEST TO QEW"	SOUTH[A]				NORTH			
	Before		After		Before		After	
	N	%	N	%	N	%	N	%
1/ Well below speed limit	3	1.7	2	1.1	0	-	0	-
2/ Slightly below speed limit	17	9.7	19	10.1	11	8.3	11	9.4
3/ At speed limit	52	29.7	107	56.9	59	44.4	59	50.4
4/ Slightly above speed limit	73	41.7	44	23.4	40	30.1	34	29.1
5/ Well above speed limit	22	12.6	13	6.9	18	13.5	10	8.5
Don't know	8	4.6	3	1.6	5	3.8	3	2.6
	175	100.0	188	100.0	133	100.1	117	100.0

A: X^2 (df = 5) = 30.70, $p < 0.01$

Table A-7/ Drivers -- Service Roads Safety (Q8)
Before-After Comparisons

SAFETY A PROBLEM? (Q8a)

	SOUTH				NORTH			
	Before		After		Before		After	
	N	%	N	%	N	%	N	%
Yes	70	40.0	71	37.8	53	39.8	45	38.1
No	103	58.9	116	61.7	77	57.9	72	61.0
Don't know	2	1.1	1	0.5	3	2.3	1	0.8
	175	100.0	188	100.0	133	100.0	118	99.9

IF YES, TO WHAT EXTENT? (Q8b)

	SOUTH				NORTH[A]			
	Before		After		Before		After	
	N	%	N	%	N	%	N	%
Mild	17	24.3	27	38.0	10	19.6	27	61.4
Moderate	33	47.1	31	43.7	21	39.3	12	27.3
Severe	20	28.6	13	18.3	22	41.1	5	11.4
	70	100.0	71	100.0	53	100.0	44	100.1

A: X^2 (df = 2) = 20.32, $p < 0.01$

Table A-8/ Drivers -- Service Roads Noise (Q9)
Before-After Comparisons

NOISE A CONCERN? (Q9a)	SOUTH				NORTH			
	Before		After		Before		After	
	N	%	N	%	N	%	N	%
Yes	15	8.6	17	9.0	19	14.3	9	7.6
No	154	88.0	167	88.8	114	85.7	108	91.5
Don't know	6	3.4	4	2.1	0	-	1	0.8
	175	100.0	188	99.9	133	100.0	118	99.9

IF YES, TO WHAT EXTENT? (Q9b)	SOUTH				NORTH[A]			
	Before		After		Before		After	
	N	%	N	%	N	%	N	%
Mild	8	53.3	7	41.2	6	31.6	6	66.7
Moderate	4	26.6	5	29.4	3	15.8	3	33.3
Severe	3	20.0	5	29.4	10	52.6	0	-
	15	99.9	17	100.0	19	100.0	9	100.0

A: X^2 (df = 2) = 7.35, $p < 0.01$

Table A-9/ Drivers -- Driving Difficulty Relative to Other Roads (Q10)
Before-After Comparisons

	SOUTH				NORTH[A]			
	Before		After		Before		After	
	N	%	N	%	N	%	N	%
More difficult	36	20.6	38	20.3	34	25.6	41	34.7
About the Same	107	61.1	106	56.7	77	57.9	69	58.5
Easier	32	18.3	42	22.5	22	16.5	8	6.8
Don't know	0	-	1	0.5	0	-	0	-
	175	100.0	187	100.0	133	100.0	118	100.0

A: X^2 (df = 2) = 6.75, $p < 0.05$

APPENDIX B/ AFTER-SURVEY COMPARISONS

Table B-1/ Residents -- Neighbourhood Likes (Q1)/Dislikes (Q2)

	ZONE 1 (N=38)		ZONE 2 (N=39)		ZONE 3 (N=32)		TOTAL (N=109)	
	N	%	N	%	N	%	N	%
LIKES								
a/ Convenience to amenities	24	63.2	21	53.8	16	50.0	61	56.0
b/ Convenience to highways	10	26.3	13	33.3	15	46.9	38	34.9
c/ Physical appearance of area	6	15.8	15	38.5	9	28.1	30	27.5
d/ Suburban location	5	13.2[A]	12	30.8	13	40.6	30	27.5
e/ Can't think of any likes	5	13.2	2	5.1	1	3.1	8	7.3
f/ Peaceful/quiet	5	13.2	3	7.7	3	9.4	11	10.1
DISLIKES								
a/ Noise from QEW	13	34.2	12	30.8	9	28.1	34	31.2
b/ Noise from airplanes	0	-	2	5.1	1	3.1	3	2.8
c/ Air pollution from QEW	3	7.9	5	12.8	1	3.1	9	8.3
d/ Too much traffic on service and local roads	10	26.3	5	12.8	2	6.3	17	15.6
e/ Physical appearance of area	3	7.9	3	7.7	1	3.1	7	6.4
f/ Type of neighbours	4	10.5	0	-	0	-	4	3.7
g/ Don't dislike anything	3	7.9[B]	6	15.4	11	34.4	20	18.3
h/ Appearance or presence of barrier	10	26.3	6	15.4	2	6.3	18	16.5

A: X^2 (2df) = 6.89, $p < 0.04$ Zone 1 differs significantly from Zone 2 and 3.
B: X^2 (2df) = 8.49, $p < 0.02$ Zone 1 and 2 differ significantly from Zone 3.

Table B-2/ Residents -- Neighbourhood Negative Features (Q3)
(N=109)

		ZONE 1	ZONE 2	ZONE 3
a/ Break-ins/ vandalism	$\bar{x}$	0.6	0.9	0.7
	S.E.	0.1	0.2	0.2
b/ Stranded motorists/ hitch-hikers	$\bar{x}$	0.4[A]	0.1	0
	S.E.	0.1	0.1	0
c/ Noise from QEW	$\bar{x}$	1.0	1.2	0.8
	S.E.	0.2	0.2	0.2
d/ Noise from service road	$\bar{x}$	1.5[B]	1.3	0.6
	S.E.	0.2	0.2	0.2
e/ Dirt and dust on porch/yard	$\bar{x}$	1.1	1.1	1.2
	S.E.	0.2	0.2	0.3
f/ Salt spray/residue from highway	$\bar{x}$	1.2	0.5	0.5
	S.E.	0.3	0.2	0.2
g/ Sight of traffic on QEW	$\bar{x}$	0.4	0	0.4
	S.E.	0.3	0	0.3
h/ Appearance of noise barrier	$\bar{x}$	1.4	1.2	0.9
	S.E.	0.2	0.2	0.2

Note 1: Overall F for MANOVA 2,95 = 2.23, $p < 0.01$
Note 2: Individual F's for ANOVA's:
Note 3: Because missing data tends to result in low N's for MANOVAs, univariate F's were computed on entire sample for each sub-part question separately.

A: $F(2,106) = 5.59$, $p < 0.01$ (Zone 1 differs significantly from Zone 2 and 3)
B: $F(2,106) = 6.48$, $p < 0.01$ (Zone 1 and 2 differ significantly from Zone 3)

Problem Level Response Categories	(0)	No Problem
	(1)	Mild
	(2)	Moderate
	(3)	Severe

Table B-3/ Residents -- Specific Limitations Related to the QEW and Service Roads (Q4)
(N = 109)

		Q.E.W.			SERVICE ROAD		
		ZONE 1	ZONE 2	ZONE 3	ZONE 1	ZONE 2	ZONE 3
a/ Amount of noise when trying to sleep	$\bar{x}$	0.4	0.9	0.6	0.5	0.8	0.3
	S.E.	0.1	0.2	0.2	0.2	0.2	0.1
b/ Noise when talking to people in your home	$\bar{x}$	0.2	0.2	0	0.3	0.2	0.1
	S.E.	0.1	0.1	0	0.1	0.1	0.1
c/ Noise when using yard/porch	$\bar{x}$	0.9	1.0	0.7	1.0	1.0	0.5
	S.E.	0.2	0.2	0.2	0.2	0.2	0.2
d/ Noise when reading or relaxing at home	$\bar{x}$	0.2	0.1	0.1	0.2	0.2	0.1
	S.E.	0.1	0.1	0.1	0.1	0.1	0.1
e/ Amount of fumes from traffic	$\bar{x}$	0.6	0.8[A]	0.2	0.8	0.9	0.3
	S.E.	0.2	0.2	0.1	0.2	0.2	0.1

NOTE 1: Overall F for MANOVA was not significant.

NOTE 2: Individual F's for ANOVAs:

A: $F(2,101) = 3.65$, $p < 0.03$ (Zone 2 differs significantly from Zone 3)

Table B-4/ Residents -- Lifestyle Limitations due to Proximity to the QEW and Service Roads (Q5)

Limitations?	Zone 1 N	Zone 1 %	Zone 2 N	Zone 2 %	Zone 3 N	Zone 3 %	Total N	Total %
Yes	5	13.2	7	17.9	4	12.5	16	14.7
No	33	86.8	32	82.1	27	84.4	92	84.4
Don't know	0	-	0	-	1	3.1	1	0.9
	38	100.0	39	100.0	32	100.0	109	100.0

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NATURE OF LIMITATIONS DUE TO PROXIMITY TO THE QEW AND SERVICE ROADS

Nature of Limitations	Zone 1 N	Zone 2 N	Zone 3 N	Total N	Total %
Must stay inside	2	3	3	8	50.0
Must talk louder	0	1	0	1	6.2
Must close windows	0	1	1	2	12.5
Others	3	2	0	5	31.3
	5	7	4	16	100.0

Table B-5/ Residents -- Problems Caused by the Noise Barrier (Q7a, 7b)

Q7a

Has Barrier Caused Problems?	Zone 1 N	Zone 1 %	Zone 2 N	Zone 2 %	Zone 3 N	Zone 3 %	Total N	Total %
Yes	13	39.4	9	23.7	12	38.7	34	33.3
No	20	60.6	28	73.7	19	61.3	67	65.7
Don't know	0	-	1	2.6	0	-	1	1.0
Missing Data	5	-	1	-	1	-	7	-
	38	100.0	39	100.0	32	100.0	109	100.0

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Q7b

Nature of Problems Caused by Barrier	Zone 1 N	Zone 2 N	Zone 3 N	Total N	Total %
Blocks light	6	2	4	12	30.8
Looks awful	1	2	4	7	18.0
Noise is worse	5	4	1	10	25.6
Reduces property value	1	0	0	1	2.6
Traffic problems	1	0	2	3	7.7
Doesn't work	0	3	0	3	7.7
Keeps in heat	0	1	0	1	2.6
Other	1	0	1	2	5.1
	15	12	12	39*	100.1

* This total is larger than 34 indicated above because respondents made more than one response.

Table B-6/ Residents -- Benefits of the Noise Barrier (Q8)

	Zone 1	Zone 2	Zone 3	Total	
	N	N	N	N	%
Less noise	22	24	13	59	49.2
Less pollution	7	5	1	13	10.8
Wind breaker	3	1	1	5	4.2
More traffic safety	2	2	0	4	3.3
No benefits	9	12	14	35	29.2
Other	1	2	1	4	3.3
	44	46	30	120*	
	(N=38)	(N=39)	(N=32)	(N=109)	

* Respondents were able to choose more than one response.

Table B-7/ Residents -- Lifestyle Changes since Construction of Barrier (Q9)

		ZONE 1		ZONE 2		ZONE 3		TOTAL	
		N	%	N	%	N	%	N	%
a/ Use of outside yard	More	12	32.4	11	28.9	3	9.7	26	24.5
	Less	1	2.7	1	2.6	0	-	2	1.9
	Same	24	64.9	26	68.4	27	87.1	77	72.6
	D/K	0	-	0	-	1	3.2	1	0.9
		37	100.0	38	100.0	31	100.0	106	100.0
b/ Ability to sleep	Better	11	29.7	7	18.4	3	9.7	21	19.8
	Worse	3	8.1	1	2.6	0	-	4	3.8
	Same	23	62.2	30	78.9	27	87.1	80	75.5
	D/K	0	-	0	-	1	3.2	1	0.9
		37	100.0	38	100.0	31	100.0	106	100.0
c/ Leaving windows open	More	7	18.9	9	23.7	4	12.9	20	18.9
	Less	3	8.1	2	5.3	0	-	5	4.7
	Same	27	73.0	27	71.1	26	83.9	80	75.5
	D/K	0	-	0	-	1	3.2	1	0.9
		37	100.0	38	100.0	31	100.0	106	100.0
d/ Entertaining at home	More	3	8.3	1	2.6	2	6.5	6	5.7
	Less	0	-	0	-	0	-	0	-
	Same	32	88.9	37	97.4	28	90.3	97	92.4
	D/K	1	2.8	0	-	1	3.2	2	1.9
		36	100.0	38	100.0	31	100.0	105	100.0

Note: D/K = don't know

Table B-8/ Residents -- After-Barrier versus Before-Barrier Situation (Q10)

		ZONE 1	ZONE 2	ZONE 3
a/ Amount of dust and dirt	$\bar{x}$	2.1[A]	2.6	2.8
	S.E.	0.2	0.2	0.2
b/ QEW traffic fumes	$\bar{x}$	2.3	2.7	2.7
	S.E.	0.2	0.1	0.1
c/ Service road traffic fumes	$\bar{x}$	3.2[B]	2.8	3.0
	S.E.	0.1	0.1	0.0
d/ Privacy from QEW traffic	$\bar{x}$	2.4	2.5	2.7
	S.E.	0.1	0.1	0.1
e/ Privacy from service road traffic	$\bar{x}$	2.9	2.8	3.0
	S.E.	0.1	0.1	0.0
f/ Noise from QEW	$\bar{x}$	1.7	2.1	2.1
	S.E.	0.1	0.2	0.2
g/ Noise from service road	$\bar{x}$	3.4	3.1	3.2
	S.E.	0.2	0.2	0.1
h/ Vibrations from QEW traffic	$\bar{x}$	2.4	2.7	2.8
	S.E.	0.2	0.1	0.1
i/ Vibrations from service road traffic	$\bar{x}$	3.1	3.0	3.0
	S.E.	0.1	0.1	0.0
j/ Salt/residue from QEW	$\bar{x}$	2.4[C]	2.9	2.9
	S.E.	0.2	0.1	0.1
k/ Salt/residue from service road	$\bar{x}$	3.1	2.9	2.9
	S.E.	0.1	0.1	0.1
l/ Overall situation	$\bar{x}$	2.1	2.1	2.4
	S.E.	0.2	.2	0.2

RESPONSE CATEGORIES
1 = Much better
2 = Slightly better
3 = No difference
4 = Slightly worse
5 = Much worse

A: $F(2,97) = 5.33$, $p < 0.01$ (Zone 1 differs significantly from Zones 2 & 3)
B: $F(2,96) = 3.64$, $p < 0.05$ (Zone 1 differs significantly from Zone 2)
C: $F(2,84) = 6.42$, $p < 0.01$ (Zone 1 differs significantly from Zones 2 & 3)

Table B-9/ Residents -- Recommended Changes to Barrier (Q11)

		ZONE 1		ZONE 2		ZONE 3		TOTAL	
		N	%	N	%	N	%	N	%
a/ Colour:	Change	26	68.4	19	48.7	10	31.3	55	50.5
	Leave as is	8	21.1	18	46.2	17	53.1	43	39.4
	Don't know	4	10.5	2	5.1	5	15.6	11	10.1
		38	100.0	39	100.0	32	100.0	109	100.0
b/ Pattern:	Apply pattern	17	47.2	16	43.2	9	28.1	42	40.0
	No pattern	15	41.7	20	54.1	18	56.3	53	50.5
	Don't know	4	11.1	1	2.7	5	15.6	10	9.5
		36	100.0	37	100.0	32	100.0	105	100.0
c/ Materials:	Different	9	27.3	3	9.4	2	6.3	14	14.4
	Same	19	57.6	25	78.1	20	62.5	64	66.0
	Don't know	5	15.1	4	12.5	10	31.2	19	19.6
		33	100.0	32	100.0	32	100.0	97	100.0

SPECIFIC CHANGES RECOMMENDED

		N	%
COLOUR:	Lighter in colour*	10	31.3
	Darker in colour *	1	3.1
	White or beige	3	9.4
	Brown, black or orange	4	12.4
	Green	11	34.4
	Other	3	9.4
		32	100.0

* Respondents were unable to give specific colour preference.

Table B-10/ Residents -- Perceptions of Overhang on Barrier (Q12-i)

		ZONE 1		ZONE 2		ZONE 3		TOTAL	
		N	%	N	%	N	%	N	%
a/ Did you notice overhang?	Yes	36	94.7	35	92.2	30	93.7	101	93.5
	No	2	5.3	3	7.9	2	6.3	7	6.5
		38	100.0	38	100.1	32	100.0	108	100.0
b/ Overhang left as is or removed?	Left	22	68.8	30	88.2	23	82.1	75	79.8
	Removed	4	12.4	1	2.9	1	3.6	6	6.4
	D/K	6	18.8	3	8.8	4	14.3	13	13.8
		32	100.0	34	99.9	28	100.0	94	100.0

Note: D/K = don't know

Table B-11/ Residents -- Overall Satisfaction with Noise Barrier (Q12-ii) (Collapsed into Two Categories)

	ZONE 1		ZONE 2		ZONE 3		TOTAL	
	N	%	N	%	N	%	N	%
Satisfied	27	73.0	28	75.7	23	88.5	78	78.0
Not satisfied	10	27.0	9	24.3	3	11.5	22	22.0
	37	100.0	37	100.0	26	100.0	100	100.0

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Residents' Overall Satisfaction with Noise Barrier (Collapsed into Three Categories)

	ZONE 1		ZONE 2		ZONE 3		TOTAL	
	N	%	N	%	N	%	N	%
Very or quite satisfied	19	51.4	20	54.1	17	65.4	56	56.0
Marginally satisfied or dissatisfied	11	29.7	13	35.1	7	26.9	31	31.0
Quite or very dissatisfied	7	18.9	4	10.8	2	7.7	13	13.0
	37	100.0	37	100.0	26	100.0	100	100.0

Table B-12/ Residents -- Frequency of QEW Travel (Q13)

	TOTAL	
	N	%
Never	6	5.5
Rarely	13	11.9
Once a week	17	15.6
More than once a week	73	67.0
	109	100.0

Table B-13/ Residents -- Perceptions of the Attractiveness of Other Barriers in Toronto (Q14)

	ZONE 1		ZONE 2		ZONE 3		TOTAL	
	N	%	N	%	N	%	N	%
Highway & area made more attractive	9	23.7	7	17.9	8	26.7	24	22.4
Highway & area made less attractive	23	60.5	18	46.2	14	46.7	55	51.4
Neither attractive nor unattractive	3	7.9	8	20.5	4	13.3	15	14.0
Don't know	3	7.9	6	15.4	4	13.3	13	12.1
	38	100.0	39	100.0	30	100.0	107	99.9

Table B-14/ Residents -- Considerations of Moving (Q15)

	ZONE 1		ZONE 2		ZONE 3		TOTAL	
	N	%	N	%	N	%	N	%
Had considered moving	17	44.7	15	38.5	8	25.0	40	36.7
Had not considered moving	21	55.3	24	61.5	24	75.0	69	63.3
	38	100.0	39	100.0	32	100.0	109	100.0
"If Considered Moving, When?"								
Before winter of 1982-83	5	33.3	5	35.7	1	12.5	11	29.7
After winter of 1982-83	2	13.3	2	14.3	4	50.0	8	21.6
Both before and after winter	8	53.4	7	50.0	3	37.5	18	48.6
	15	100.0	14	100.0	8	100.0	37	99.9
"Was Proximity to QEW a Factor in Consideration to Move?"								
Yes	10	58.8	6	46.2	3	37.5	19	50.0
No	7	41.2	7	53.8	2	25.0	16	42.1
Don't know	0	-	0	-	3	37.5	3	7.9
	17	100.0	13	100.0	8	100.0	38	100.0

Table B-15/ Residents -- Perceptions of Property Values Since Construction of Barrier (Q20)

	ZONE 1		ZONE 2		ZONE 3		TOTAL	
	N	%	N	%	N	%	N	%
Property value increased	9	25.0	8	28.6	8	27.6	25	26.9
Property value decreased	14	38.9	5	17.9	2	6.9	21	22.6
No effect on property value	9	25.0	11	39.2	15	51.7	35	37.6
Don't know	4	11.1	4	14.3	4	13.8	12	12.9
	36	100.0	28	100.0	29	100.0	93	100.0

Table B-16/ Drivers -- Frequency of Driving on the Service Road (Q1)

	SOUTH		NORTH		TOTAL	
Every day	61	32.4	36	30.5	97	31.7
Several times per week	67	35.6	35	29.7	102	33.3
Several times per month	26	13.8	22	18.6	48	15.7
Infrequently	34	18.1	25	21.2	59	19.3
	188	99.9	118	100.0	306	100.0

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Table B-17/ Drivers -- Level of Comfort While Driving Beside the Barrier (Q12)

	SOUTH		NORTH		TOTAL	
	N	%	N	%	N	%
More comfort since barrier	63	35.0	34	31.8	97	33.8
Less comfort since barrier	42	23.3	10	9.3	52	18.1
Same as before barrier	75	41.7	63	58.9	138	48.1
	180	100.0	107	100.0	287	100.0

X^2 (2df) = 11.59, $p < 0.01$

Table B-18/ Drivers -- Service Roads Safety (Q8)/Noise (Q9) and Driving Difficulty Relative to Other Roads (Q10)

	SOUTH		NORTH		TOTAL	
	N	%	N	%	N	%
SAFETY A PROBLEM? (Q8)						
Yes	71	37.8	45	38.1	116	37.9
No	116	61.7	72	61.0	188	61.4
Don't know	1	0.5	1	0.8	2	0.7
If Yes, to What Extent?						
Mild	27	38.0	27	61.4	54	47.0
Moderate	31	43.7	12	27.3	43	37.4
Severe	13	18.3	5	11.4	18	15.6
Average Severity Score	1.80		1.5			
REASONS GIVEN FOR SAFETY PROBLEMS						
Traffic is fast/busy	18	24.7	11	24.4	29	24.6
Dangerous lane positioning	32	43.8	16	35.6	48	40.7
Barrier is distracting	4	5.5	3	6.7	7	5.9
Other	19	26.0	15	33.3	34	28.8
NOISE A CONCERN? (Q9)						
Yes	16	8.6	9	7.6	25	8.2
No	167	89.3	108	91.5	275	90.2
Don't know	4	2.1	1	0.8	5	1.6
If Yes, To What Extent?						
Mild (1)	7	41.2	6	66.7	13	50.0
Moderate (2)	5	29.4	3	33.3	8	30.8
Severe (3)	5	29.4	0	-	5	19.2
Average Severity Score	1.88		1.33			
DRIVING DIFFICULTY RELATIVE TO OTHER ROADS (Q10)						
More difficult (1)	38	20.3	41	34.7	79	25.9
About the same (2) A	106	56.7	69	58.5	175	57.4
Easier (3)	42	22.5	8	6.8	50	16.4
Don't know	1	0.5	0	-	1	0.3
Average Difficulty Score	2.02		1.72			

A: X^2 (3df) = 17.33 $p > 0.01$

Table B-19/ Drivers -- Perceptions of Overhang on Barrier (Q13e, 13f)

		SOUTH		NORTH		TOTAL	
HAVE SEEN OVERHANG?		N	%	N	%	N	%
Yes	A	96	52.7	77	70.0	173	59.2
No		86	47.3	33	30.0	119	40.8
		182	100.0	110	100.0	292	100.0
If Yes, Should Overhang be Left as is or Removed?							
Left as is		68	81.9	64	90.1	132	86.8
Removed		15	18.1	7	9.9	22	13.2
		83	100.0	71	100.0	154	100.0

A: X^2 (1df) = 7.75, $p < 0.01$

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Table B-20/ Drivers -- Recommended Changes to Barrier (Q13)

		N	%
Colour	Change	82	28.3
	Leave as is	196	67.6
	Don't know	12	4.1
		290	100.0
	If Yes, What Colour?		
	Lighter colour	24	42.1
	Darker colour	3	5.3
	White/beige	8	14.0
	Brown/black/orange	7	12.3
	Green	12	21.1
	Other	3	5.3
		57	100.1
Pattern	Apply pattern	60	20.8
	No pattern	210	72.9
	Don't know	18	6.3
		288	100.0
Materials	Different	29	10.4
	Same	220	79.2
	Don't know	29	10.4
		278	100.0

Table B-21/ Drivers -- Comments Concerning Driving or Traffic on the Service Roads (Q14b)

	SOUTH		NORTH		TOTAL	
	N	%	N	%	N	%
Traffic too busy/fast	8	7.5	12	34.3	20	14.2
Roadways are confusing	23	21.7	5	14.3	28	19.9
Barrier should be extended	5	4.7	5	14.3	10	7.1
Dangerous (driving)	2	1.9	4	11.4	6	4.3
General dissatisfaction	22	20.8	4	11.4	26	18.4
Generally positive	46	43.4	5	14.3	51	36.2
	106	100.0	35	100.0	141	100.1

APPENDIX C/ RESIDENT QUESTIONNAIRE

POST CONSTRUCTION
SURVEY OF AREA RESIDENTS
APPLIED RESEARCH ASSOCIATES
September/October 1983

INTERVIEWER: READ OUT REGULAR TYPE ONLY.
DO NOT READ BOLD FACE TYPED WORDS.

_____ AM/PM
TIME BEGIN

INTERVIEWER: READ WITH TEMPO AND CLARITY

Hello, my name is _____ from Applied Research Associates. We are conducting this survey for the Ministry of Transportation and Communications. I would like to ask you some general questions concerning your views and perceptions of the area. The survey will be short and will only take approximately 20 min of your time. Of course, your answers will be strictly confidential and summarized for statistical purposes. Do you recall answering some questions for a quality of life survey about your neighborhood two years ago? Could I speak to the person who was interviewed for this study two years ago? (We understand that the person was a man/woman).

ASK THE FIRST QUESTION IMMEDIATELY

RESPONDENT I.D. / / / / / / / / / / / / / /

1/ First, I would like you to think of your immediate neighbourhood. This would include the area within 3 blocks or one-quarter mile of your home. Within this area what features do you like most of all?

CODERS ONLY

DO NOT READ : PROBE FOR MORE "LIKES" "Is there anything else?"

INTERVIEWER -- CHECK EACH RESPONSE MENTIONED

( ) a/ convenience to local services or amenities; close to shopping, schools, public transit, place of work, parks, entertainment, friends, open spaces; /__/ 9

( ) b/ convenient to major highways, expressways; /__/10

( ) c/ physical appearance of area; /__/11

( ) d/ suburban location: away from city, less crowded, quiet streets, little local traffic, etc.; /__/12

( ) e/ don't like or can't think of anything; /__/13

( ) f/ others (specify) _____ /__/14

2/ Now, I would like you to think about the features you dislike most of all about living in this neighbourhood?

DO NOT READ: AGAIN PROBE FOR DISLIKES "Is there anything else?"

INTERVIEWER -- CHECK EACH RESPONSE MENTIONED

( ) a/ traffic noise (QEW or service road); /__/15

( ) b/ noise from airplanes; /__/16

( ) c/ air pollution/dust/dirt from Queen Elizabeth Way; /__/17

( ) d/ not convenient to local amenities: too far from schools, shopping, public transit, place of work, parks, entertainment, friends, open space; /__/18

( ) e/ too much traffic on service road or local streets; /__/19

( ) f/ physical appearance of area: unkept lawns, parks, presence of highrise buildings etc.; /__/20

( ) g/ type of neighbours: noisy, rowdy teens, etc.; /__/21

( ) h/ don't dislike anything; /__/22

( ) i/ others (specify) _____ /__/23

3/ I will now read a set of potentially negative features of a neighbourhood. I would like you to indicate if you consider any of these a problem in your neighbourhood. If you do feel it is a problem, could you please indicate if it is mild, moderate or severe.

CODERS ONLY

INTERVIEWER: (0) No problem; (1) Mild problem; (2) Moderate problem; (3) Severe problem (7) Don't know

	CODE NUMBER	CODERS ONLY
a/ the amount of break-ins/vandalism;	____	/__/24
b/ stranded motorists or hitch-hikers;	____	/__/25
c/ the amount of noise from the QEW;	____	/__/26
d/ the amount of noise from the service road;	____	/__/27
e/ the amount of dust and dirt that settles on your yard or porch;	____	/__/28
f/ the amount of salt spray or residue from the highway in the winter on your home or yard;	____	/__/29
g/ the sight of traffic on the QEW;	____	/__/30
h/ the appearance or looks of the noise barrier;	____	/__/31
i/ Comments _____ _____		/__/32

4/ Consider some further potentially negative statements about the QEW and the service road separately. Could you please respond to each statement as you did for the previous statements.

INTERVIEWER: (0) No problem; (1) Mild problem; (2) Moderate problem; (3) Severe problem (7) Don't know

a/ the amount of noise when you are trying to sleep;

QEW	____	/__/33
Service road	____	/__/34
Can't tell difference	____	/__/35

b/ the amount of noise when you are talking to people in your home;

QEW	____	/__/36
Service road	____	/__/37
Can't tell difference	____	/__/38

	CODE NUMBER	CODERS ONLY

c/ the amount of noise when using your yard or porch;

QEW	____	/__/39
Service road	____	/__/40
Can't tell difference	____	/__/41

d/ the amount of noise when reading or relaxing in your house

QEW	____	/__/42
Service road	____	/__/43
Can't tell difference	____	/__/44

e/ the amount of fumes from traffic

QEW	____	/__/45
Service road	____	/__/46
Can't tell difference	____	/__/47

Comment _____

_____

_____

_____

5/ Do you feel any of the above problems limit the kinds of things you or your family do in and around your home?

( ) 1/ Yes (Specify) _____ /__/48

( ) 2/ No

( ) 7/ Don't know/no reply

( ) 8/ Not applicable/no problems

6/ When did you first move into this home /__/49 /__/50

Year 19___

If 1983: Did you move in before January 1983 or after? /__/51

Before ___ After ___

IF AFTER JANUARY, SKIP TO Q.11

INTRO: Now I'm going to ask you some questions about the noise barrier constructed last winter between the QEW and the service road.

CODERS ONLY

7/ a/ Has the noise barrier caused any problems that you are aware of?

Yes 1 **(ASK 7b)** /__/52
No 2
Don't know 7

b/ What problems has the noise barrier caused?

_ /__/53
_ /__/54
_ _

8/ What benefits are you getting from the noise barrier?

_ /__/55
_ /__/56
_ /__/57
_ /__/58

9/ Since construction of noise barrier, are there some things that you are able to do differently now?

a/ use your outside yard more or less; /__/59

More 1
Less 2
Same 3
Don't know 7

b/ sleep better or worse; /__/60

Better 1
Worse 2
Same 3
Don't know 7

c/ leave windows open more or less; /__/61

More 1
Less 2
Same 3
Don't know 7

d/ entertain at home; /__/62

More 1
Less 2
Same 3
Don't know 7

Others: _ /__/63
_ /__/64
_ _

10/ I'd like you to compare the situation now with the situation before the noise barrier was put up last winter. Please indicate your response from the card provided. **(HAND CARD)** CODERS ONLY

In terms of **(read categories)** would you say the situation now is...

1 Much better
2 Slightly better
3 No difference
4 Slightly worse
5 Much worse
7 Can't say

a/ the amount of dust and dirt that settles in your yard;	1 2 3 4 5 7	/__/65
b/ the fumes from traffic on the QEW;	1 2 3 4 5 7	/__/66
c/ the fumes from traffic on the service road;	1 2 3 4 5 7	/__/67
d/ the privacy in your yard from traffic on the QEW;	1 2 3 4 5 7	/__/68
e/ the privacy in your yard from traffic on the service road;	1 2 3 4 5 7	/__/69
f/ the noise from the QEW;	1 2 3 4 5 7	/__/70
g/ the noise from the service road;	1 2 3 4 5 7	/__/71
h/ the vibrations on windows from QEW traffic;	1 2 3 4 5 7	/__/72
i/ the vibrations on windows from service road traffic;	1 2 3 4 5 7	/__/73
j/ the salt spray or residue from the QEW in winter;	1 2 3 4 5 7	/__/74
k/ the amount of salt spray or residue from the service road in winter;	1 2 3 4 5 6	/__/75
l/ the overall situation;	1 2 3 4 5 6	/__/76
Probe: Anything else:_ _ _ _

11/ If you could recommend changes to the appearance of this type of barrier, looking at it from this side of the highway, what would you suggest? (For example, would you:) CODERS ONLY

a/ Change the colour or leave it?
(specify colour preference: _____)
(prompt:lighter or darker shade?)

Change colour	___1	/__/78
Leave it	___2	/__/79
Don't know/no reply	___7	

b/ Apply a pattern or leave it?
(specify: _____)

Pattern	___1	/__/80
No pattern	___2	/__/81
Don't know/no reply	___7	

c/ Use different materials or the same materials?
(Specify: _____)

Different materials	___1	/__/82
Same materials	___2	
Don't know/no reply	___7	

d/ Other changes
Specify: _____ /__/83

12-i/

a/ Have you noticed the overhang on top of the barrier? **(If yes, ask b.)**

Yes	___1	/__/84
No	___2	
Don't know/no reply	___7	

b/ Would you wish it left as is or removed altogether?

Left as is	___1	/__/85
Removed	___2	
Don't know/no reply	___7	

12-ii/

a/ In general, how satisfied are you with this noise barrier?
(HAND CARD)

Please give me an answer from this sheet

Very satisfied	___1	/__/86
Quite satisfied	___2	
Somewhat satisfied	___3	
Somewhat dissatisfied	___4	
Quite dissatisfied	___5	
Very dissatisfied	___6	
Don't know/no opinion	___7	

b/ Why are you **(READ ANSWER)** with the noise barrier?

_____ /__/87

13/ On the average, how many times a week do you travel on the QEW? CODERS ONLY

(READ:)

Never	1	/__/88
Rarely	2	
Once a week	3	
More than once a week	4	

14a/ Barriers are being built along other highways in Toronto. In your opinion, do these barriers make the highway and the area around it:

READ:

More attractive	1	/__/89
Less attractive	2	
Neither attractive nor unattractive	3	
Don't know	7	

b/ Why do you feel the barriers make the highways (read answer above)?

_ /__/90
_ _
_ _

The remaining questions will be brief and are just for statistical purposes so that we can classify all the information into different groupings.

15a/ At any time have you or your family considered moving away from here?

( ) 1. Yes
( ) 2. No GO TO QUESTION #16 /__/91

b/ IF YES Was it:

Prior to last winter	( )	/__/92
After last winter	( )	
Both periods	( )	

c/ Were your reasons considered for moving related to being near the QEW? If you decided against moving, did this decision have anything to do with the noise barrier?

PROBE FOR DETAILS

( ) 1/ Yes _ /__/__/93,94
( ) 2/ No _
( ) 7/ Can't specify

16/ Do you own or rent your present home? CODERS ONLY

( ) 1/ Own
( ) 2/ Rent
( ) 3/ Other (specify) _____
( ) 8/ Refused

/__/95

17/ In what year were you born? /__/__/96,97

Year _____ /__/98
Refused_____ (if refused, estimate age) _____ /__/__/99,100

18/ May I have your phone number and last name as someone may phone to verify I was here.

Phone Number /__/__/__/ /__/__/__/__/

Name: Mr./Mrs./Miss _____

19/ Do you have any further comments you would like to make concerning your neighbourhood?

_____ /__/__/101,102
_____
_____
_____

20/ Since construction of the noise barrier, do you feel that the value of your property has increased, decreased or remained the same? /__/103

Thank you very much for your cooperation

TERMINATE, THEN FILL IN NEXT PAGE

_____ _____

TIME END

INTERVIEWERS PAGE

22/ Sex of Respondent — CODERS ONLY

( ) 1. Male — /__/101

( ) 2. Female

23/ Name of Respondent

Mr./Mrs./Ms. _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

24/ Address of Respondent

_ _
_ _

25/ Zone of Household

( ) 1. Zone 1 — /__/102
( ) 2. Zone 2
( ) 3. Zone 3

Interviewer's Signature _

INTERVIEWER RECORD OF CALLS

	Day	Date	Time	Reason*for Incomplete
First Call				
Second Call				
Third Call				
Fourth Call				

* Reasons

1/ Refused
2/ Language barrier
3/ Not at home (message card left)
4/ Incomplete
5/ Not a permanent resident
6/ Person not eligible

APPENDIX D/ DRIVER QUESTIONNAIRE

POST CONSTRUCTION
SURVEY OF AREA DRIVERS
APPLIED RESEARCH ASSOCIATES

APPLEWOOD PLAZA -- North of QEW

INTERVIEWER: READ OUT REGULAR TYPE ONLY.
DO NOT READ BOLD FACE TYPED WORDS.

INTERVIEWER: READ WITH TEMPO AND CLARITY

Hello, could I please ask you a few questions about traffic in this area for the Ministry of Transportation and Communications?

SAY IMMEDIATELY

A/ Do you have a driver's licence?

( ) IF NO -- TERMINATE AND THANK INDIVIDUAL
IF YES -- CONTINUE IMMEDIATELY

B/ Have we interviewed you in the past few days at this plaza or at the plaza on the other side of the QEW?

( ) IF YES -- TERMINATE AND THANK INDIVIDUAL
IF NO -- CONTINUE IMMEDIATELY

C/ Have you driven on the service road between this plaza and Cawthra Road within the last month?

( ) IF NO -- TERMINATE AND THANK INDIVIDUAL
IF YES -- CONTINUE AND IMMEDIATELY SAY

I would like to ask you some general questions concerning driving along the service road between this plaza and Cawthra Road, which will take less than 5 min of your time. Your responses will remain anonymous; we do not need your name.

INTERVIEWER: ASK THE FIRST QUESTION IMMEDIATELY

1/ How frequently would you say you have driven on some portion of the service road between this plaza and Cawthra Road? CODERS ONLY

( ) 1/ every day /__/ 1
( ) 2/ several times per week
( ) 3/ several times per month
( ) 4/ infrequently, once or twice per month

SHOW DRAWING

For the next three questions, I would like you to think of yourself driving on the north service road in the direction away from the plaza. That is, driving in the lane closest to the houses toward Cawthra Road.

Do you understand which direction I mean?

WAIT FOR RESPONSE. IF SUBJECT SAYS NO -- REPEAT.

2/ The speed limit on the service road is 60 km/h.

What about the speed of traffic driving in the same lane as you, away from the plaza, generally would you say it is,

( ) 1/ well below speed limit /__/ 2
( ) 2/ slightly below speed limit
( ) 3/ at speed limit
( ) 4/ slightly above speed limit
( ) 5/ well above speed limit
( ) 7/ **don't know**

3/ What about the position of other vehicles driving in the same lane as you away from the plaza, generally would you say they drive

( ) 1/ quite close to the curb /__/ 3
( ) 2/ about the middle of the lane
( ) 3/ quite close to the centre line
( ) 7/ **don't know**

4/ What about the position of oncoming vehicles as you are driving away from the plaza, generally would you say they drive

( ) 1/ quite close to the QEW /__/ 4
( ) 2/ about the middle of the lane
( ) 3/ quite close to the centre line
( ) 7/ **don't know**

SHOW DRAWING

CODERS ONLY

Now, for the next three questions I would like you to think of yourself driving toward this plaza on the North Service Road coming from Cawthra Road. That is, driving toward this plaza in the lane closes to the QEW.

Do you understand which direction I mean?

WAIT FOR RESPONSE. IF SUBJECT SAYS NO -- REPEAT.

5/ What about the speed of traffic driving in the same lane as you, toward the plaza, generally would you say it is

( ) 1/ well below speed limit
( ) 2/ slightly below speed limit
( ) 3/ at speed limit
( ) 4/ slightly above speed limit
( ) 5/ well above speed limit
( ) 7/ don't know

6/ What about the position of other vehicles driving in the same lane as you, toward the plaza, generally would you say they drive /__/5

( ) 1/ quite close to the highway
( ) 2/ about the middle of the lane
( ) 3/ quite close to the centre line
( ) 7/ don't know

7/ What about the position of oncoming vehicles as you are driving toward the Plaza, generally would you say they drive

( ) 1/ quite close to the curb
( ) 2/ about the middle of the lane
( ) 3/ quite close to the centre line
( ) 7/ don't know

/__/6

For the next two questions, I would like you to indicate if you consider either situation a problem. If you do feel it is a problem, please indicate if it is mild, moderate or severe.

8/ Is safety while driving on the service road a problem?

( ) 1/ yes
( ) 2/ no
( ) 7/ don't know

(If YES) To what extent is safety a problem?

/__/7

( ) 1/ mild
( ) 2/ moderate
( ) 3/ severe

Why do you feel that way? CODERS ONLY

_ /__/10
_ _
_ _

9/ Is noise while driving on the service road a concern?

( ) 1/ yes /__/11
( ) 2/ no
( ) 7/ don't know

(If YES) To what extent is noise a problem?

( ) 1/ mild /__/12
( ) 2/ moderate
( ) 3/ severe

10/ Compared to driving in general would you say that driving on the service road

( ) 1/ is more difficult /__/13
( ) 2/ is about the same
( ) 3/ is easier
( ) 7/ don't know

11/ Have you noticed the noise barrier between the QEW and the North Service Road?

( ) 1/ yes /__/14
( ) 2/ no. SKIP TO QUESTION 14
( ) 7/ don't know

12/ Now that there is a noise barrier, do you feel more or less comfortable driving along the North Service Road?

More ___1 (Probe for details if more /__/15
Less ___2 or less comfortable)
Same ___3

_ /__/16
_ _

13/ If you could recommend changes to the appearance of this type of barrier, looking at it from this side of the highway, what would you suggest?

a/ Change the colour or leave it? Change colour 1 /__/17
Leave it 2 /__/18
Don't know/no reply 7

(specify colour preference: _____)
(prompt -- lighter or darker shade?)

b/ Apply a pattern or leave it? Pattern 1 /__/19
No pattern 2 /__/20
(specify) _ _ _ _ _ _ _ _ _ _ Don't know/no reply 7

_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

CODERS ONLY

c/ Use different materials or the same materials? (Specify: .....)
Different materials 1
Same materials 2
Don't know/no reply 7
/__/21

d/ Other changes
Specify: .....
/__/22

13a/ Have you noticed the overhang on top of the barrier? (If yes, ask 13b)
Yes 1
No 2
Don't know/no reply 7
/__/23

13b/ Would you wish it left as is or removed altogether?
Left as is 1
Removed 2
Don't know/no reply 7
/__/24

14/ What type of vehicle do you usually drive when you drive on the service road?

( ) 1/ car
( ) 2/ van/small truck
( ) 3/ motorcycle
( ) 4/ large truck/tractor (more than 4 wheels)
( ) 5/ other (specify) .....
/__/25

Do you have any further comments you would like to make about driving or traffic on the service road?

.....
/__/26
/__/27

15/ Would you tell me in what year you were born?

YEAR ..... REFUSED .....
(if refused, estimate age)
/__/28
/__/29 /__/30

Thank you very much for your cooperation.

TERMINATE INTERVIEW

RECORD Sex of Respondent

( ) 1/ Male
( ) 2/ Female

Plaza Code

( ) 1/ Dixie
( ) 2/ Applewood

/__/31 /__/32

POST CONSTRUCTION
SURVEY OF AREA DRIVERS
APPLIED RESEARCH ASSOCIATES

DIXIE PLAZA -- South of QEW

INTERVIEWER: READ OUT REGULAR TYPE ONLY.
DO NOT READ BOLD FACED TYPED WORDS.

INTERVIEWER: READ WITH TEMPO AND CLARITY

Hello, could I please ask you a few questions about traffic in this area for the Ministry of Transportation and Communications.

SAY IMMEDIATELY

A/ Do you have a driver's licence?

( ) **IF NO -- TERMINATE AND THANK INDIVIDUAL**
IF YES -- CONTINUE IMMEDIATELY

B/ Have we interviewed you in the past few days at this plaza or at the plaza on the other side of the QEW?

( ) **IF YES -- TERMINATE AND THANK INDIVIDUAL**
IF NO -- CONTINUE IMMEDIATELY

C/ Have you driven on the service road between this plaza and Cawthra Road within the last month?

( ) **IF NO -- TERMINATE AND THANK INDIVIDUAL**
( ) **IF YES -- CONTINUE AND IMMEDIATELY SAY**

I would like to ask you some general questions concerning driving along the service road between this plaza and Cawthra Road, which will take less than 5 min of your time. Your responses will remain anonymous; we do not need your name.

INTERVIEWER: ASK THE FIRST QUESTION IMMEDIATELY

1/ How frequently would you say you have driven on some portion of the service road between this plaza and Cawthra Road? CODERS ONLY

( ) 1/ every day /__/ 1
( ) 2/ several times per week
( ) 3/ several times per month
( ) 4/ infrequently, once or twice per month

SHOW DRAWING

For the next three questions, I would like you to think of yourself driving toward this plaza on the south service road coming from Cawthra Road. That is, driving toward this plaza in the lane closest to the houses.

Do you understand which direction I mean?

WAIT FOR RESPONSE. IF SUBJECT SAYS NO -- REPEAT.

2/ The speed limit on the service road is 60 km/h.

What about the speed of traffic driving in the same lane as you, toward the plaza, generally would you say it is,

( ) 1/ well below speed limit /__/ 2
( ) 2/ slightly below speed limit
( ) 3/ at speed limit
( ) 4/ slightly above speed limit
( ) 5/ well above speed limit
( ) 7/ **don't know**

3/ What about the position of other vehicles driving in the same lane as you toward the plaza, generally would you say they drive

( ) 1/ quite close to the curb /__/ 3
( ) 2/ about the middle of the lane
( ) 3/ quite close to the centre line
( ) 7/ **don't know**

4/ What about the position of oncoming vehicles as you are driving toward the plaza, generally would you say they drive

( ) 1/ quite close to the highway /__/ 4
( ) 2/ about the middle of the lane
( ) 3/ quite close to the centre line
( ) 7/ **don't know**

SHOW DRAWING

CODERS ONLY

Now, for the next three questions I would like you to think of yourself driving on the service road, in the direction away from the plaza. That is driving in the lane closest to the highway toward Cawthra Road.

Do you understand which direction I mean?

WAIT FOR RESPONSE. IF SUBJECT SAYS NO -- REPEAT.

5/ What about the speed of traffic driving in the same lane as you, away from the plaza, generally would you say it is

( ) 1/ well below speed limit
( ) 2/ slightly below speed limit
( ) 3/ at speed limit
( ) 4/ slightly above speed limit
( ) 5/ well above speed limit
( ) 7/ **don't know**

/__/ 5

6/ What about the position of other vehicles driving in the same lane as you, away from the plaza, generally would you say they drive

( ) 1/ quite close to the highway
( ) 2/ about the middle of the lane
( ) 3/ quite close to the centre line
( ) 7/ **don't know**

/__/6

7/ What about the position of oncoming vehicles as you are driving away from the plaza, generally would you say they drive

( ) 1/ quite close to the curb
( ) 2/ about the middle of the lane
( ) 3/ quite close to the centre line
( ) 7/ **don't know**

/__/7

For the next two questions, I would like you to indicate if you consider either situation a problem. If you do feel it is a problem please indicate if it is mild, moderate or severe.

8/ Is safety while driving on the service road a problem?

( ) 1/ Yes
( ) 2/ No
( ) 7/ **don't know**

/__/ 8

(If YES) to what extent is safety a problem?

( ) 1/ mild
( ) 2/ moderate
( ) 3/ severe

/__/ 9

Why do you feel that way? CODERS ONLY

_ /__/10
_ _
_ _

9/ Is noise while driving on the service road a concern?

( ) 1/ Yes /__/11
( ) 2/ No
( ) 7/ don't know

(If YES) To what extent is noise a problem?

( ) 1/ mild /__/12
( ) 2/ moderate
( ) 3/ severe

10/ Compared to driving in general would you say that driving on the service road

( ) 1/ is more difficult /__/13
( ) 2/ is about the same
( ) 3/ is easier
( ) 7/ don't know

11/ Have you noticed the noise barrier between the QEW and the South Service Road?

( ) 1/ Yes /__/14
( ) 2/ No. SKIP TO QUESTION 14
( ) 7/ don't know

12/ Now that there is a noise barrier, do you feel more or less comfortable driving along the South Service Road?

More ___1 (Probe for details if more /__/15
Less ___2 or less comfortable)
Same ___3

_ /__/16
_ _

13/ If you could recommend changes to the appearance of this type of barrier, looking at it from this side of the highway, what would you suggest?

a/ Change the colour or leave it? Change colour 1 /__/17
Leave it 2 /__/18
Don't know/no reply 7

(specify colour preference: _____)
(prompt - lighter or darker shade?)

b/ Apply a pattern or leave it? Pattern 1 /__/19
No pattern 2 /__/20
Don't know/no reply 7

(specify) _ _ _ _ _ _ _ _ _ _ _ _ _
_ _ _ _ _ _ _ _ _ _ _ _ _

CODERS ONLY

c/ Use different materials or the same materials?
Different materials ___1
Same materials ___2
Don't know/no reply ___7
/__/21

(Specify) _ _ _ _ _ _ _ _ _ _ _ _ _ _
_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

d/ Other changes
Specify: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

APPENDIX E/ LETTER TO RESIDENTS

October 6, 1983

Dear Sir/Madam:

THE PROVINCIAL GOVERNMENT IS INTERESTED IN YOUR OPINIONS

The Ministry of Transportation and Communications has contracted with our firm to conduct a study in your neighbourhood. This study is a follow-up to one conducted two years ago. The study concerns your views of the quality of life in your neighbourhood. We will be asking about both positive and negative aspects of the neighbourhood, and I think you will find it interesting.

I would like to emphasize that we are NOT selling ANY product or service, but simply conducting a survey. Sometime between October 11 and October 29 one of our interviewers will be calling you, at your home, to request your participation. You will be asked to spend 20-30 min of your time answering some questions. These questions will be general and cover such issues as pollution, road condition and local area amenities. Your responses will be treated in strict confidence and will be used in group for statistical purposes only.

Your help and cooperation would be greatly appreciated. It is only through the participation of individuals such as yourself that the government can identify issues of importance to you as a resident of this community.

For both your convenience and ours, a call from you to set a meeting time in advance would be most welcome.

Thanking you in advance.

Yours very truly,

APPLIED RESEARCH ASSOCIATES

C. Peter Morden
Senior Consultant

CPM/ak

961-1474